



UNIVERSITY OF DENVER *Solar Decathlon*

FINANCIAL FEASIBILITY & AFFORDABILITY
BUILD CHALLENGE



FEASIBILITY & AFFORDABILITY

There are several unique challenges within our Solar Decathlon project which provide learning opportunities and constraints that will impact the financial feasibility and affordability contest strategy. The existing structure was built in 1955 and is located in a FEMA 100-year floodplain. We are challenged to avoid updating the entire structure to current FEMA floodplain standards as it would require us to demolish the entire building and start from scratch. As an alternative, we can make improvements to the structure while at the time staying below 50 percent of the structures estimated value without having to bring the building to the onerous FEMA standards. If we go over budget we will trigger significant improvement (SI) standards, which will require major updates not feasible to the Owner. We are using this opportunity to create a “Living Lab” where we can come up with creative solutions for both our local community and people nationwide living in a FEMA floodplain to update their homes, become more energy efficient, and to be more affordable.

In order to stay within the Floodplain requirements, we needed to keep our spending under approximately \$125,000. This relatively low budget forces us to come up with real world, ingenious methods to create an energy efficient home. We believe we have come up with a reasonable budget to accomplish these goals while providing a desirable duplex for the University to increase its current rental income with a Net-Zero energy house. We have committed around 65,000 to the building of this project. Roughly 16,000 was used to remove trees on the property. This project can be repeatable and we have given options to how one can try to get to Net-Zero.

DU SD 2021 CONSTRUCTION ESTIMATE

				Total	Total	Total	Total		
DESCRIPTION	QTY	UNIT	UNIT \$	MATERIAL/ ITEM	BID	LABOR	DONATED		SPENT
GENERAL CONDITIONS									
Building permits & fees	1	EH	\$500.00	\$500.00					0
Senior Design Project	1	EH	\$1,500.00	\$1,500.00					
Dumpster load - Approx. 20 yards, 4 tons of debris	2	EH	\$405.00	\$810.00					405
SUB-TOTAL			\$3,905.00	\$2,810.00	\$0.00	\$0.00	\$0.00		
SITE & LANDSCAPING									
Rear Tree Removal	1	EH	\$8,300.00				\$8,300.00	Allan Will Cover	
Crane Service for Rear Tree Removal	1		\$0.00		\$0.00			Allan Will Cover	
Front Tree Removal	1		\$2,775.00	\$2,775.00					2775
Landscaping and fencing	1	EH	\$2,500.00	\$2,500.00					
Accessible ramps	1	EH	\$1,500.00		\$1,500.00				
SUB-TOTAL			\$15,075.00	\$5,275.00	\$1,500.00	\$0.00	\$8,300.00		
DEMOLITION									
Demolish/remove - kitchen, upstairs bathroom, rear porch, DU Student Hourly Labor	40	HR	\$15.00			\$600.00			
SUB-TOTAL			\$15.00	\$0.00	\$0.00	\$600.00	\$0.00		
REMODEL									
Main Floor									
Wall Insulation (bid item - material & labor -)	1	EA	\$5,000.00				\$5,000.00		
Air Sealing from Air-Barrier	1		\$0.00		\$0.00				
Paint walls - two coats - DU Student Hourly Labor	40	HR	\$15.00			\$600.00			
Paint ceiling - one coat - DU Student Hourly Labor	20	HR	\$15.00			\$300.00			
Paint supplies	1.00	EA	\$500.00	\$500.00					500
R&R Blown-in insulation - 20" depth - R50 - materials	1,056.00	SF	\$0.80	\$844.80					
R&R Blown-in insulation - 20" depth - R50 - DU Student Hourly Labor	8	HR	\$15.00			\$120.00			
Sand & finish wood floor (natural finish) - equipment rental	1	EA	\$268.00	\$268.00					
Sand & finish wood floor (natural finish) - 1056 SF - DU Student Hourly Labor	40	HR	\$15.00			\$600.00			
R&R Exterior door - metal - insulated - flush or panel style - material	3	EA	\$318.22	\$954.66					
R&R Vinyl window, horizontal sliding, 24-32 sf - material	1	EA	\$387.86	\$387.86					
R&R Wood door - lauan face, 5 or 7 ply hollow core - material	6	EA	\$74.86	\$449.16					
R&R Bifold door set - lauan/mahogany - double - material	3	EA	\$109.00	\$327.00					
R&R Closet rod & shelf - material	21	LF	\$4.75	\$99.75					
R&R Baseboard - 3 1/4" - material	262	LF	\$1.29	\$337.98					
R&R Door lockset & deadbolt - exterior - Standard grade - material	3	EA	\$73.78	\$221.34					

DESCRIPTION	QTY	UNIT	UNIT \$	MATERIAL/ITEM	BID	LABOR	DONATED		SPENT
HVAC refit	1	EA	\$6,000						
EnergyModeling Kit	1	ALL	\$400.00						
SUB-TOTAL			\$6,400						
MISCELLANEOUS									
Staging for Open House	1	EA	\$2,500.00	\$2,500.00					
Tools	1	EA	\$1,000.00	\$1,000.00					
SUB-TOTAL			\$3,500.00	\$3,500.00	\$0.00	\$0.00	\$0.00		
			Potential Build Cost						
SUBTOTAL			\$69,912.90	\$25,665.59	\$14,786.31	\$7,320.00	\$32,208.52		
TOTAL CONSTRUCTION COST		Total Materials & Bids		\$40,451.90			\$39,528.52	Total Donations & Student Labor	
DONATIONS & BUDGET INCOMES									
Allan Wilson, Facilities Budget to be transferred to SD Account				\$33,000.00					
Current SD Account				\$17,223.00					
Total Project Income				\$50,223.00					
REMAINING				\$9,771.10					